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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,633	12/04/2003	Yasushi Sugimoto	0229-0781P	6199

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EXAMINER

BLAU, STEPHEN LUTHER

ART UNIT PAPER NUMBER

3711

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/726,633	<b>Applicant(s)</b> SUGIMOTO, YASUSHI	
	<b>Examiner</b> Stephen L. Blau	<b>Art Unit</b> 3711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2006.  
 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-7 is/are rejected.  
 7) ☒ Claim(s) 1 and 2 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/4/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-2 are objected to because of the following informalities: These claims are not one sentence. There is a period within each claim. Appropriate correction is required.

### ***Specification***

2. The disclosure is objected to because of the following informalities: There is no face lines 15 in figure 7 as stated on page 9 lines 14-16.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg.

2001-29523 discloses an iron having a face plate, a receiving portion supporting a peripheral edge portion of the face plate, a tin portion and a thick portion in a free deflection area which a back surface faces an opening portion, a thin portion occupying 15-70 % of the free deflection area (Figs. 3c and 3d), a thickness of the thin portion

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being between 1.2 to 2.0 mm, a thickness of a thick portion being between 2 and 4 mm, the difference between the thickness of the thick and thin portions being .2 to 1.5 mm (Verbal Translation [0022], [0023]) and a horizontal distance between a face center and a center of figure of the thin portion being able to be changed (Figs. 3c and 3d).

2001-29523 lacks a set of irons, three or more irons with different lofts, a horizontal distance between a face center and a center of figure of the thin portion satisfies the conditions of claim 1 (i.e. center of the thin portion is closer to the toe for small lofted clubs (C.G. is closer to the heel for smaller lofted clubs)).

Lundberg discloses a set of irons, three or more irons (Tables I and III) with different lofts (Col. 4, Lns. 41-65), adjusting a shape and location of the center of the shape of a thin portion (21) and a thick portion in the from of raised portion (22) in a cavity of an iron (2) to change the center of gravity of low lofted club to be closer to the heel and a center of gravity of a high lofted club to be closer to a toe (i.e. center of figure of the thin portion will be closer to the toe for smaller lofted clubs and satisfy the conditions of claim 1) (Figs. 13-14, Col. 7, Lns. 40-53) in order to have less drag in longer, less lofted clubs, have more inertial drag in the shorter, more lofted clubs and utilize the gear effect phenomenon inherent in clubs more effectively (Abstract).

In view of the patent of Lundberg it would have been obvious to modify the iron of 2001-29523 to be a set of irons and the set having three or more irons with different lofts in order to utilize the advantages of an iron of 2001-29523 for a set of irons and in order to have more than one different type of lofted club to choose from when playing a round of golf. In view of the patent of Lundberg it would have been obvious to modify

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the set of irons of 2001-29523 to have a horizontal distance between a face center and a center of figure of the thin portion satisfies the conditions of claim 1 (i.e. center of the thin portion is closer to the toe for small lofted clubs (C.G. is closer to the heel for smaller lofted clubs)) in order to have less drag in longer, less lofted clubs, have more inertial drag in the shorter, more lofted clubs and utilize the gear effect phenomenon inherent in clubs more effectively.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg as applied to claims 1 and 4-5 above, and further in view of Davis.

2001-29523 lacks a sweet spot location as defined by claim 2 (sweet spot is closer to a heel for small lofted clubs).

Davis discloses the sweet spot of a club is substantially the center of gravity of a club (Page 2, Lns. 53-55). In view of the patent of Davis it would have been obvious to modify the set of irons of 2001-29523 to have a sweet spot location as defined by claim 2 (sweet spot is closer to a heel for small lofted clubs) in order to have a sweet spot aligned with the center of gravity so a golfer will aim at the center of gravity of a head and maximize accuracy when impacting a ball.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg as applied to claims 1 and 4-5 above, and further in view of Ezaki.

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2001-29523 lacks a center of gravity depth as defined by claim 3 (depth decreases as loft increases). Ezaki discloses a center of gravity depth as defined by claim 3 (depth decreases as loft increases) (Figs. 6-8, Ref. Zg) and the deeper the center of gravity the easier it is to spin a ball (Col. 1, Lns. 26-33). In view of the patent of Ezaki it would have been obvious to modify the set of irons of 2001-29523 to have a center of gravity depth as defined by claim 3 (depth decreases as loft increases) in order to have more spin for high lofted clubs to stop and even spin a ball back to a hole when landing on a green.

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg as applied to claims 1 and 4-5 above, and further in view of Antonious.

2001-29523 discloses different shapes of a thin portion (Figs. 3a, 3c, 3d).

2001-29523 lacks a thin portion being formed in an approximately trapezoidal shape in which a horizontal length  $W_b$  on a sole side is longer than a top side horizontal length  $W_a$ , and a ratio of  $W_b/W_a$  is between 1 to 4.5.

Lundberg discloses different shapes of a thin portion (Figs. 13-14). Antonious discloses different shapes for effecting the weight distribution of a head including a trapezoidal shape (Fig. 12). Clearly an artisan skilled in the art would have selected a suitable shape for a thin portion to have the right horizontal and vertical location of a center of gravity in which a trapezoidal shape is included.

In view of the patents of Antonious and Lundberg it would have been obvious to modify the iron set of 2001-29523 to have a weight distribution shape for a thin portion where a thin portion is formed in an approximately trapezoidal shape as a design choice in which a horizontal length  $W_b$  on a sole side is longer than a top side horizontal length  $W_a$ , and a ratio of  $W_b/W_a$  is between 1 to 4.5 in order to keep the center of gravity at a low height to maximize trajectory of an impacted ball for a golfer who tends to hit a ball too low.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fujimura discloses moving a cavity to adjust a center of gravity. Kobayashi discloses changing a center of gravity of a head in a set of irons.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen L. Blau whose telephone number is (571) 272-4406. The examiner can normally be reached on Mon - Fri 10:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eugene Kim can be reached on (571) 272-4463. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Slb/ 18 February 2005



**STEPHEN BLAU**  
**PRIMARY EXAMINER**